Scientific American.

THE ADVOCATE OF INDUSTRY, AND JOURNAL OF SCIENTIFIC, MECHANICAL AND OTHER IMPROVEMENTS.

VOL. XIV. NEW YORK, JUNE 25, 1859. NO. 42.

NEW PROSPECTUS OF THE SCIENTIFIC AMERICAN.

ENLARGEMENT.

Volume I., Number 1—New Series.

The Publishers of the SCIENTIFIC AMERICAN respectfully announce to their readers and the public generally, that, on the first day of July *next* (1859), their journal will be enlarged and otherwise greatly improved; and at that time will be commenced "Volume I., No. 1, New Series," which will afford a more suitable opportunity for the commencement of new subscriptions than is likely to occur again for many years.

The form of the journal will be somewhat changed from what it now is, so as to render it better adapted for binding and preservation and instead of eight pages in each number as now, there will be *sixteen* and in a completed yearly volume the number of pages will be doubled to 832, or 416 more than now.

The SCIENTIFIC AMERICAN is published at a price which places it within the reach of all; and as a work of reference for the Workshop, Manufactory, Farm and Household, no other journal exceeds or even equals it in the value and utility of its information. Its practical recipes alone oft-times repay the subscription price ten-fold. Inventors will find it, as heretofore, the mirror of the Patent Office, and the reliable record of every claim issued weekly by the Office, the list being officially reported for its columns.

With the enlargement of the SCIENTIFIC AMERICAN, we shall be enabled to widen the sphere of our operations, omitting none of the features which now characterizes it, but adding many new ones, which will render the work more valuable to all classes of the community than it has heretofore, among which is the devoting of space to a Price Current, and a column or two to the Metal and Lumber markets, and such other branches of trade as may be interesting and useful.

The increased outlay to carry out our design of enlargement will amount to eight thousand dollars a year on our present edition; and in view of this we appeal **to our readers and friends to take hold and aid in extending our circulation.** Think of getting, at our most liberal club rates, a yearly volume containing about 600 original engravings and 832 pages of useful reading matter, for less than three cents a week! Who can afford to be without it at even ten times this sum?

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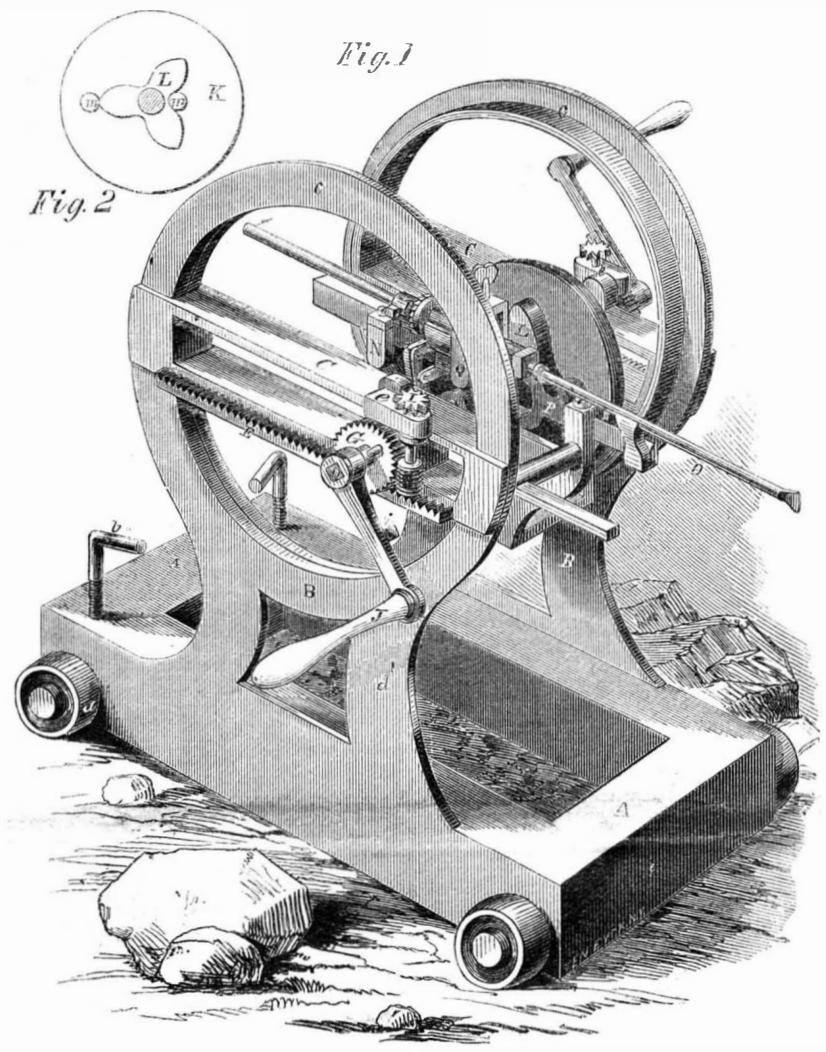
Beautiful Electrotype Table Tops.

A most beautiful invention, connected with ornamental tables, has lately been exhibited in London. It consists in securing, with varnish, mother-of-pearl, precious stones, curious shells, &c., on a plate of copper intended for a table top. These are arranged in an artistic manner to represent figures, leaving spaces of clean copper between them and then submitting it to an electrotype bath, where a deposit of copper is made to fill up the spaces between the stones, &c., and thus hold them embedded in the metal. After this the plate is submitted to a silver electroplating bath and the copper covered with silver, thus forming a curious and exquisite table cover ready to be placed on a pedestal.

WE have to thank Capt. A. A. Humphreys of the Topographical Engineers, for his able report of recent explorations and surveys, and the excellent maps which have been constructed under his supervision.

WHITE'S ROCK AND COAL DRILL.



A really good drill is a great desideratum for mining purposes, and has long been wanted; one so arranged that it could be worked by hand or power as the size of the bore or the facilities of the mine or quarry enabled to be done. The subject of our engraving is such a machine, and is the invention of Lyman White, of Davenport, Iowa, the patent being granted this week.

Fig. 1 shows a perspective view of the whole machine and Fig. 2 an isolated view of the working cam. A is a frame which is mounted on small rollers, *a*, that can be adjusted by screw rods, *b*. To each side of the frame, A, is an upright supporting piece, B, formed of an annular top piece, *c*, and two supports. *d*. Within each piece, *c*, a bar, C, is placed, and secured in the desired position by screws. C are slotted longitudinally nearly their whole length, and a bearing, *e*, is fitted so that it can slide in the slot. D is a shaft which rotates in *e*, On the outer edge of C a rack, E, is placed, in which the teeth of a wheel fit, that is connected with the worm wheel, G, both of which turn loosely on the shaft, D. A screw, H, gears with G, and on the top of H is a small toothed wheel, I, that is moved one tooth every time the crank, J, makes one revolution by the pin, *i*, passing between the teeth of I. By this means the drill is fed to its work. On the shaft, D, a wheel or disk, K, is placed, and it is provided on its face with a cam, L. On D there is suspended a box which carries a carriage, N O P, on which are placed the rollers, *m m*, that, passing both sides the cam, L, cause the carriage to be moved back and forth by the cams. The drill, O, is secured in a frame in this carriage that is provided with a ratchet wheel at its end, so that the drill may be rotated as it is at work. The operation is very simple. By turning the cranks, J, the drill receives a rapid percussive and return motion, giving three blows to one rotation of the crank, and at the same time the drill is fed to its work and itself turned to cut the whole round. It can be advantageously used by farmers to remove rocks from the farm, and is so simple that any mechanic can construct it. A two-inch bore and under can be done by hand, and it is only above that size that animal or steam power will be required. The editor of the *Iowa State Democrat* has seen it in operation, and speaks very highly of its performances.

Any further information can be obtained by addressing the inventor as above.

Flaxen Ringlets.

Poets have often sung in raptures of blue-eyed, laughing flaxen-haired girls, but George Speight, of London, a thoroughly practical man, understands things better than those dreaming rhymsters who make sonnets to their sweethearts' ringlets, for he makes flaxen ringlets for those sweethearts. He has just taken out a patent for making plaits and curls for headdresses and other head ornaments and employs Russian or American hemp dyed to the exact shade desired, and glossed up with aromatic grease, and curled to adorn the head of some happy fair one either with flowing auburn or raven locks as may be desired When it is taken into consideration that long brown hair for making ladies' artificial curls costs from $10 to $12 per pound, Mr. Speight may be considered a sort of benefactor to all those individuals who are deficient in natural cranial ornamentation, although we think his invention will rather *spite* the girls in Normandy, who cultivate their hair expressly for our wigmakers.

Peddlers in human hair traverse France, and attend the country fairs, to which the girls flock who have long tresses for sale. These are offered for examination, and a bargain struck for each fleece according to its length, color, and texture—the dark auburn being the most prized. When this is done, down sits the devoted fair one on a stool, and a large pair of ruthless scissors soon completes the operation, and the price being paid, the shorn damsel goes on her way rejoicing. Beautiful long tresses which a fashionable lady would not part with for thousands of dollars are parted with by the French rustic maidens without a sigh and for very small sums, little dreaming that in a short time afterwards, they may be attracting a score of admirers in Broadway. Such has been the way of the world heretofore, but Mr. G. Speight intends to have a different order of things hereafter—if he can.

New Gold Discovery.

The Melbourne (Australia) *Argus* states that great excitement has been created at the celebrated Bendigo Diggings by the discovery that a conglomerate metal, very common, but which has been hitherto disregarded, will yield not less than 150 oz. of pure gold to the tun, with a very large per centage of zinc. The analysis is as follows:—Zinc, about 45 per cent; iron, about 20 per cent; sulphur, about 15 per cent; arsenic, about 10 per cent; other extraneous substances, about 9 per cent; gold, about 1 per cent: total, 100—giving a result of 1 oz. of pure gold out of every 100 oz. of the conglomerate. It states that "this discovery has opened up a fresh mine of incalculable wealth." From the nature of the alloy it will not be an easy process to reclaim the gold, and it will not pay the expenses in Australia. If this conglomerate were imported at a small cost to New York, it could be smelted and refined with profit.

MOLDS OF ENGRAVINGS.—Gutta-percha can be dissolved in olive oil by the agency of heat, and it then becomes a plastic mass, which is kneaded with warm water to wash it, and the moisture then pressed out. It is now laid on the face of an engraved plate, which is designed and copied by the electrotype process, and heat is applied to the under surface. The composition is thus melted and fills up every line of the engraving; it is then suffered to cool and when it becomes dry and hard, it is easily removed and forms a mold containing a perfect copy of the engraving. The face of this mold is now dusted with pure plumbago, and placed in an electrotype trough, when a coat of copper is deposited upon it. In a very simple manner multiplied copies of engravings can thus be obtained.

PROSPECTUS.—We hope the friends of the SCIENTIFIC AMERICAN will send without delay for our prospectus, with a view to getting subscribers on our new volume; and from those who have already received them we hope to soon hear a good account.

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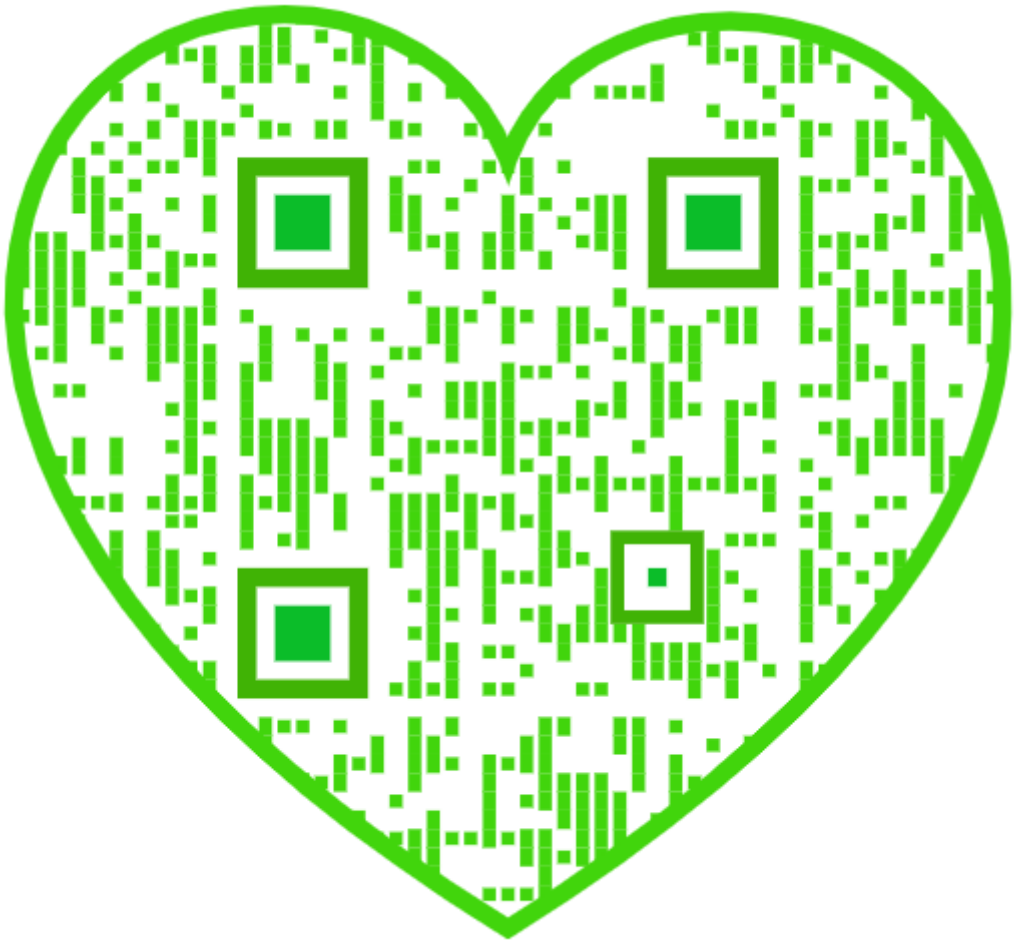

Issued from the United States Patent Office

FOR THE WEEK ENDING JUNE 14 1859.

[*Reported officially for the Scientific American.*

*** Circulars giving full particulars of the mode of applying for patents, size of model required, and much other information useful to inventors may be had gratis by addressing MUNN & CO., Publishers of the SCIENTIFIC AMERICAN, New York.

WASHING MACHINE—Pleasant Armstrong, of Camden, Ala.: I claim, first, The arrangement of the complete stationary rounds of the convex swing frame, on two semi-circular lines of different diameters, so that the rollers on the smallest semi-circle shall stand above and opposite the spaces between the rollers on the largest semi-circle, in combination with the arrangement of the stationary rounds of the concave, substantially as and for the purposes set forth.

Second, The arrangement of two auxiliary treadle standards with the main standards of the tub, in the manner described and for the purpose set forth.

MACHINE FOR PRINTING ADDRESSES, &c.—John A. Barrington, of Fredericktown, Ohio: I claim, first, A cylinder constructed with grooved ribs, or their equivalents, for holding forms of type, presenting them at a proper point, to perform the office of printing, and afterwards allowing them to be delivered from the cylinder, substantially as described.

Second, In combination with the cylinder, B, I claim the ribs, k, arranged upon an endless chain in such manner as to receive the forms of type, as described.

Third, Securing the forms i, within the ribs b, in such manner as to present said forms properly for printing, by means of the follower, j j n, catch, j'', and spring j''', substantially as described.

Fourth, Adjusting the forms of type for printing and delivering them from the cylinder after printing, by means of a reciprocating bar, operating substantially as described, or its equivalent in effect.

Fifth, The inclined feed-wheel, W, constructed with adjustable spring conveyors, v v', and operating substantially as described.

Sixth, Regulating and adjusting the speed of the endless apron, T, by means of the inclined disk, t, friction wheel, t', set screws, V' V'' V''', and crank screw, V, all constructed, arranged and operating substantially as described for the purpose set forth.

GAGE FOR MEASURING THE PRESSURE OF FLUID—Victor Beaumont, of New York City: I claim, first, So arranging respectively dome-shaped elastic disks of one or mere spring chambers in pressure gages, as that the pressure of steam or other fluid within said chamber is indicated by the motion of the disk or plate, which presents its convexity to the pressure.

Second, The manner substantially as described of guiding the free end of a spring, consisting of one or more chambers, expanding by pressure from within, in order to prevent it from vibrating in any direction but that of its axis.

Third, In pressure gages with a hollow spring chamber mechanism, I claim partially filling the space inside of chambers with a solid substance, or substances, in the manner and for the purposes set forth.

INSTRUMENT FOR MEASURING THE STRENGTH OF WATCH SPRINGS—J. M. Bottum, of New York City: I claim an arbor, having a measuring spring affixed thereto, together with an index, substantially as described, and an attachment for attaching the hair spring to be measured, combined and arranged in the manner and for the purposes set forth, and constituting a ready means of determining the exact force of said hair springs, as specified.

CHURN—P. S. Devlan, of Reading, Pa.: I claim the employment in a churn, in which the cream is acted upon by a blast only of a float, G, substantially as and for the purpose described.

ORE SEPARATOR—Wm. O. Bourne, of New York City: I claim, first, A sieve-bed, in which the opening or openings for the passage of the air or water through it are so contracted as to enforce an uniform action of the air or water through the entire surface of the sieve-bed, which may be made of sheet metal, or of any textile material, either separately or in combination, or of their equivalent, as set forth.

Second, The application of a vibrating and shaking motion to a sieve-bed, in combination with a blast or current of air, or water, in the manner and for the purpose described.

Third, The described adjustable blades for agitating the substance on the sieve-bed, and for regulating the discharge of the refuse substances over the front edge of the table, as described.

Fourth, The separation of metals, or other heavy substances, from ores, or other materials, when upon a sieve-bed, by the gravitation of the lighter substances towards and over the front or waste edge when acted upon by a current of air, or water through a sieve-bed, in the manner and for the purpose set forth.

MARINE HAND PROPELLER—E. C. Brackett, of Newton Corner, Mass.: I claim the arrangement and combination of the adjustable oar, B, arms, D, oscillating shaft, E, hinged blades, F, rods, G, arms, K P, rod, N, and lever, H, as and for the purposes set farth and described.

[This device is more especially intended to propel boats of from ten to twenty tuns, and to replace the single enormous oar now in use. A number of propellers or blades are hung to a pivoted arm which is fixed to the end of a vertical post attached to the side of the boat, and they are operated by means of an arm, connecting rod, and lever so as to give to them a swinging or vibrating motion, at the same time the blades are so hinged as to adapt themselves to the impact of the water in an inclined position similar to the act of rowing or sculling.]

VALVE—Wm. Bramwell, of New York City: I claim the sliding nut, k, actuated by the screw, i, in combination with the hinged valve, m, and toggle links, l l, substantially as specified.

REEFING SAILS—Joseph Francis Brouard, of Havre de Grace, France. Patented in France Feb. 2, 1855: I claim, first, Supporting the rolling yard, F (Fig. 12, sheet No. 3) between its points of suspension, by the hook, N, the said hook being constructed and operated as described for the purpose of staying the rolling yard and holding it in position, when the sail attached to it is acted upon by the wind, as set forth.

Second, The construction of the boom iron, shown in Fig. 9, sheet No. 3, for the purpose of placing the boom in position, to prevent the chafing of the sail, as described.

PROJECTILE FOR KILLING WHALES—Robert Brown, of New London, Conn.: I claim the flukes on the shank of the bomb, the line attached thereto, the gooove or indentation in the barrel of the bomb, for the line as stated.

SELF-PRIMING LOCKS—J. S. Butterfield and Simeon Marshall, of Philadelphia, Pa.: We claim, first, The extension, g, on the carrier, I, in the manner and for the purpose as substantially set forth.

Second, We claim disconnecting each primer from the roll, with the seating of the hammer, in the manner and for the purpose substantially set forth.

Third, We claim the adjustable center projection, h h, and thumbscrew, q q, arranged and operated in the manner and for the purpose as substantially set forth.

METHOD OF ATTACHING THE CAPPING OF FENCE POSTS—R. S. Cadwell, of Andover, Ohio: I claim the projection, or tongue, A, formed on the top of the post, in connection with the mortise, 1, in the capping, for attaching the said capping to the post, and securing it by a batten, as described.

MODE OF FASTENING LETTERS TO SIGNBOARDS, &c.—Thos. Champion and Thos. Motley, of Washington, D. C.: We claim the placing or casting on the back of letters projections with solid cast or wrought shanks therefrom.

We claim holes in said projections to fasten by screws, nails, or rivets, substantially as described.

FLY-TRAP—I. S. Clough, of Brooklyn, N. Y., and S. R. Burrell, of New York City: We claim the combination of the stationary cone, revolving catcher and start and receptacle, when constructed as described and for the purpose specified.

[An illustration and description of this invention will be found on another page.]

SUGAR CANE PRESS—Thos. Grame, of Port Atkinson, Wis.: I claim the combination of the pressure rollers, B C, with the main bearing wheel, A, of a frame, which is so proportioned and supported that it can he rotated around a pivot post, but this I only claim when a fluid receiving vessel, a, a conducting tube, i, an annular channel j, and a delivery spout, k, are combined with the said frame, substantially in the manner and for the purpose represented and described.

MANUFACTURING PAPER—S. S. Crocker and Geo. E. Marshall, of Lawrence, Mass.: We claim, first, The combination of internally heated drying cylinders, a, with a steam box, or boxes, arranged for the purpose of continuously first thoroughly drying paper, and then superficially moistening it, by the direct application of steam prior to the operation of calendering.

Second, The combination of a steam box or boxes, so arranged as to moisten paper superficially by the steam therein contained, with rolls which calender by pressure as described.

LOOMS—Chas. Crossley, of Ellington, Conn.: I claim first, The combination of the series of vibrating tuft formers, K K' K'', and the vibrating reed, G H, arranged and operating substantially as above described.

Second, The combination of the weights, 3 and 4, the knotted cord and slotted arm, 5, for the purpose of controlling the set-off of the tufting yarn beam, as described.

DRAIN TILE MACHINES—Jones Daines, of Birmingham, Mich.: I claim, first, The bar, G, and hooks, D, in combination with the crossbar, E, when used for the purpose of opening the lid, C, automatically, as described.

Second, I claim the bar, B, combined with the frames M, in the manner mentioned, with the levers, L, for cutting off the tile by the returning of the plunger.

HORSE BRACKET—T. B. Davis, of Lexington, Mass.: I claim the improved mode of fastening and confining it to the foot, by having the points of attachment bear directly upon the shoe, so as not to injure the ankle or fetlock, by galling on the hoof by compression, and also the machinery by which the bracket is adjusted to the size of the foot, and held more firmly and securely than by any other mode of attachment now known.

MILK CAN—E. R. Denniston, of Middletown, N. Y., I claim, as an improved article of manufacture, a milk can, having its cover, C, hinged to a bench, f, and provided with a plate, h, stopper, k, and having the guard hoop, B, attached to the body of the can, b, all as shown and described.

PLOWS—Eli Moore, of Slabtown, S. C.: I claim the arrangement of the beam, A, brace, B, clevis, C, foot, D, stock, E, and ring, F,—the whole being constructed as described for the purposes specified.

ATTACHMENTS TO LOCOMOTIVE ENGINES FOR REMOVING OBJECTS FROM THE TRACK—C. H. Eisenbrandt, of Baltimore, Md.: I claim the double suspension lifting platform, composed of the parts, c c c 2, d d, e e, f f, g g, h h, J J, K K, L L, m m, the yielding network or flexible fender guard, or its equivalent, i i i i, when constructed, combined and arranged substantially in the manner set forth and described.

OPERATING SWITCHES ON RAILROADS—Chas. Foster, of Eldridge's Hill, N. J.: I claim the mode of operating switches by means of movable cams, i i, or their equivalents, on the car, acting on a cam, A, or its equivalent, connected by means of levers with the switch rail, c, substantially as described.

MACHINES FOR DRESSING MILLSTONES—H. B. Gill, of Ogden, N. Y.: I claim the combination and arrangement of the pivoted segmental arm, O, and slide, N, with the striking lever, G, and cam, M, or its equivalent, substantially in the manner and for the purpose set forth.

MACHINES FOR MAKING HAY—T. I. Goff, of Warren, R. I.: I claim the combination of the gathering rake, D, and revolving rake, E, when arranged for joint operation, substantially as and for the purpose set forth.

[A gathering and a revolving rake fitted in a frame mounted on wheels are used in this invention, by which the grass as it is left by the mowing machine may be expeditiously turned for the purpose of being cured or made into hay. The object of this invention is to expedite the process of making hay, so that the work may be speedily done, and the old injunction of "make your hay while the sun shines" be better fulfilled.

VENTILATORS—G. D. Greenleaf, of Chateaugay, N.Y.: I claim, in combination with the cylinder, A, bell-shaped casting, G, and plates, B D, the cup, J, and register, f, for the purpose specified.

[By allowing the impure air of a room to escape into the pipe of a stove by which a chamber is heated, a good ventilation is obtained, and one so simple that it should be universally adopted.]

ROTARY ENGINES—Dexter D. Hardy, of Cincinnati, Ohio: I claim, first, The arrangement of the rings, e' e'' e''', operating in the described combination with the pipes, s s, to pack the revolving shaft, C, in its connection with the stationary cylinder, A, by the use of steam or water pressure as explained.

Second, The combination and arrangement of the revolving shaft, C, containing the receiving and discharge ports, J K, with the stationary cylinder, A B, and valves, E E, substantially as described,

HORSE RAKES—Henry Hersh, of Lancaster, Pa.: I claim the arrangement and combination of the S-shaped teeth, H, lock, I, revolving axle, B, and clearers, M, as described and for the purposes set forth.

OMNIBUS REGISTER—H. C. Howells, of New York City, and J. C. Howells, of Madison, Wis.: We claim, first, The employment of a yielding platform to determine the value of the entry or fare, and in combination with doors, or equivalent devices, to secure the registration of persons standing upon it, previous to their ingress or egress, substantially as specified and set forth.

Second, We also claim the employment and use of the circular or segmental doors, or equivalent devices, having within the area of their action a yielding platform, operating substantially as set forth and specified.

Third, We claim, in combination with the yielding platform, G, an operative lever, N, and vertical rod, M, and puppet, Q, or their equivalents, substantially as set forth and for the purpose specified.

Fourth, We claim the pin, or bolt, s, in combination with the arm, O, attached to the vertical rod, M, or their equivalents, for communicating motion to the registering levers, S and T, by the action of the jointed arm, P, substantially as specified and set forth.

Fifth, We also claim the registering levers, S and T, operated as set forth, or their equivalents, and in combination with the registering ratchet wheels, U and V, and the spring pawls, m m, together with the double dial, X, for registering the whole or half entries or fares, substantially as set forth and specified.

Sixth, We also claim the stationary brushes, and the arrangement and combination of levers and rods, or their equivalents, for operating the doors and steps, sub tantially as set forth and described.

SOWING MACHINES—Solon P. Hubbell, of Unadilla, N. Y.: I claim the combination of the bar, I, having teeth, W, angular notches, X, and clearers, V, with hopper, D, its pins, Y, and slide blocks, O, the whole being constructed and arranged as and for the purpose set forth.

I also claim, in combination with the hopper, D, pins, Y, slide blocks, O, and regulating plate, E, the reciprocating bar, F, with its clearers, R R', and stirrers, S; these several devices being constructed and arranged for operation conjointly in the manner and for the purpose described.

TUNING KEY-BOARD—Richard Humphreys, of Jonesborough, Tenn.: I claim as a new article of manufacture, the described compound tuning reeds, necessary to represent the corresponding keys in the general scale of musical notations, substantially as described.

[The nature of this invention is in combining on a rectangular board, any desired number of octaves of properly tuned reeds, similar to those used in melodeons, to represent a corresponding number of octaves of the natural scale of musical notation (or white keys of a piano-forte), and another set of correctly tuned reeds to represent the semi-tones of the octaves, in such a manner as to enable the musician, by comparing the tones of his instrument with those of the key-board, to detect and correct the least departure from the correct tone.]

WOOD SCREWS—Henry L. Kendall, of Providence, R. I.: I claim a wood screw, having a thread of a ratchet-tooth shape in combination with wide spaces between the convolutions thereof, on a stem cylindrical, or nearly so, and on a point of any suitable form, substantially as set forth.

I also claim making the threaded point of a wood screw in such a manner that the thread thereof (except the terminal convolution) shall be of the same or nearly the same depth on its upper and lower sides, to give the screw a firmer hold of the wood, especially on its first entrance, than it would have if the threads on the point were made of gradually less depth toward the apex, substantially as set forth.

I also claim so forming the thread of a wood screw that it shall be of the same depth on the upper and under side, on the point and on the stem, (except the terminal convolution of the point, which is contracted rapidly in depth and width,) substantially as set forth.

BREECH-LOADING FIRE-ARM—Daniel Leavitt, of Chicopee, Mass.: I claim effecting the locking and unlocking of the upwardly-opening breech, and the starting of the same from its seat to open it, by means of a detached lever having a locking-dog, f', to enter a notch in the breech, and a toe, g, to act against the bottom of the breech, substantially as described.

[This invention consists in the employment, in combination with a breech-loading fire-arm, of what the inventor calls a "combination packing," consisting of a piece of felt fitting snugly into the rear portion of the barrel, and a piece of stout paper, pasteboard, or other hard, inflexible material of a form and size to pass easily through the barrel, the felt being placed next the breech of the fire-arm, and the paper or hard material between the felt and the charge, that by the force of the explosion it may be driven back against the felt and so caused to compress the same against the breech and spread it laterally against the sides of the chamber and force it close against the joint, and so prevent the escape of gases and keep the joint perfectly clean. This "combination packing" is applicable to breech-loading fire-arms of various constructions.]

SEWING MACHINES—James S. McCurdy, of Brooklyn, N. Y.: I claim, first, The combination of a reciprocating needle with a pair of loopers, or their equivalent, the combination as a whole operating in such manner that each successive needle-loop is encircled by a tight coil of the thread of the preceding loop, substantially as described.

Second, The combination and arrangement of two loopers, substantially such as described, with a driver operating substantially in the manner and for the purpose described.

Third, Constructing and operating one of the loopers in such manner that a supplementary movement is imparted to it while the other is at rest, for the purpose of tightening the stich.

MUSICAL INSTRUMENTS—H. T. Merrill, of Galena, Ill.: I claim the gamut board, C, applied above and behind the keys, in combination with a sliding name-board, B, or its equivalent, substantially as specified.

[The object of this invention is to facilitate the learning of the location of the notes and their indicative letters upon the base and treble staffs, and at the same time the association of the location of every note upon the staffs with its respective key on the key-board of a piano-forte, melodeon, organ, or other musical instrument having a key-board of similar character. To effect this a vertically sliding name-board, or board occupying the usual position of the name-board of a piano-forte or similarly keyed instrument, extending the whole length of the key-board, a fixed or "staff-board," having represented on it the base and treble staffs, and the indicating letters of the notes arranged above their respective keys, are employed, the "staff-board" being so arranged behind the name-board as to be exposed by sliding up and concealed by sliding down the last-mentioned board.]

CULTIVATORS—Azel Smith, of Westfield, Ohio: I claim the adjusting brace-plates, C C, frames, B B, and cutters, D D, when arranged as described, and in combination with the adjustable mold-boards.

LAMPS—Rufus S. Merrill, of Lynn, Mass.: I claim, in coal oil burners of otherwise ordinary construction, the combination with a flat wick tube, of the removable director, constructed as described, with inclined side walls and vertical ends, the latter being corrugated or grooved to fit the ends of the wick tube, as a means of securing the director to the wick tube, and for directing or conveying the heated vapors mixed with atmospheric air, to the sides of the flame, substantially in the manner and for the purposes set fortn.

HANGING CARRIAGE BODIES—Leman C. Miner, of Hartford, Conn.: I claim, first, The application of the double-jointed shackle, H, to the front axle, whereby the vertical position of the spring and axle is sustained, and the fifth wheel and appendages dispensed with.

Second, The back axle braces with double joints, B B, to admit a free and easy vertical motion of the springs and supporting the axle in its upright position, substantially in the manner as described.

VULCANIZING CAOUTCHOUC—Dubois D. Parmelee, of New York City: I claim the preparation and use of the ingredients described, with bromine, whether combined or not with sulphur, substantially as described and for the purposes set forth.

STEAM PRESSURE REGULATOR—A. P. Pitkin, of Hartford, Conn.: I claim the forming a connection with the reduced pressure pipe or chamber, A, and diaphragm spring or piston, B, or their equivalents, for the purpose of opening and closing a passage, C, between the high and reduced pressure pipes or chambers, A and D, as and for the purpose described.

Also the combination of passage, C, piston or valve, E, rod, I, lever, F, diaphragm spring or piston, B, and safety-valve, H, arranged to operate in relation to each other as and for the purpose described.

DEVICES FOR SECURING THE CLEVIS TO PLOWS—R. B. Pringle, of Coventry, N. Y.: I claim the arrangement of the pin, C, feather or rib, c, spaces, e e, clevis, B, beam, A, and groove, a, as described, for the purposes set forth.

KEYS, ETC., FOR PIANO FORTES—Joseph Hoffacker and Joseph Richards, of New York City: We claim, first, The construction of the key-board, by substituting, instead of the usual keys, knobs connected with the main levers, substantially as described.

Second, The pivoted rod, a, in combination with the main levers, m, substantially as described.

Third, The construction of the damper, O, substantially as set forth.

Fourth, The construction of the trigger, n, and its action on the damper, O, substantially as described.

Fifth, The construction of the hammer, s, and its action in combination with the principal lever, m, substantially as described.

CLIP FOR CARRIAGE THILLS—Daniel J. Riker, of Harlem, N. Y.: I claim extending the plate, c, of the carriage clip, in the form of a spring, to the eye of the shafts, and causing said spring to operate on the aforesaid eye, in the direction of the pull, to keep the parts of the bolt and eye in contact, for the purposes and as described.

SPEEDER AND STRETCHER FLYERS—John N. Sawtell, of Chicopee, Mass.: I claim the new article of manufacture described for a flyer for spinning frames, when constructed essentially in the manner and for the purposes set forth.

METHOD OF VENTILATING CORN HOUSES—Noah Seitz, of Mellmore, Ohio: I claim the arrangement of the openings, O and O', with the wire grating, in combination with the secondary perforated floor, d, lathing, e, and ventilator, f, substantially as and for the purposes set forth.

SAW-SET—Alex. Shoemaker, of Carey, Ohio, assignor to James G. Hunt, of Reading, Ohio: I claim the adjustable arm, O, with the fingers and adjusting screw in combination with the spring trip-hammer.

I also claim the spring, I, and the trip-hammer, in combination with the adjusting frame, L, and rollers, N N, and adjusting screws; these several devices I claim, when arranged substantially as set forth for the purpose described.

CONSTRUCTING SHEET-METAL COFFINS—Isaac C. Shuler, of Amsterdam, N. Y.: I claim, first, The arrangement of strengthening the lower part of a sheet-metal coffin, by folding over and soldering together, consecutively in several thicknesses, the surplus metal of the sides and ends of a sheet-metal tray, c, forming a rim all round the outside circumference of the base, and fastening the walls of the coffin firmly thereto. I claim also the arrangement of fastening to the under-side of this tray, or bottom of the coffin, the frames, b b, for the purpose of stiffening it.

Second, The arrangement of placing on the inside of a sheet-metal coffin a metal tray, d, with scrolled edges, which rests on a flange formed by turning in the walls of the coffin all round their tower edges, and fastening this tray firmly thereto and also to the walls, for the purpose of strengthening the structure. I also claim the bars, b, for strengthening this tray.

Third, The arrangement of scrolling, or folding outwardly, and soldering, consecutively, each fold of the surplus edges of the walls of a sheet-metal coffin, forming a rim all around the upper edge of the walls, for the purpose of strengthening and securing the same in straight lines for jointing, substantially as described.

Fourth, The arrangement of forming on the inside of the upper edges of the walls of a sheet-metal coffin, a scrolled rim on the piece, e, for the purpose of more firmly supporting the air-tight cover, and also for the purpose of securing the cover by screws as well as by solder when desirable.

Fifth, The arrangement of fastening on the outside of a sheet-metal coffin between the stiffening rims of the upper and lower edges of the walls, the studs or pillars, o, at the corners and along the sides and ends in any required number, according to the size of the coffin, for the purpose of stiffening the sheet-metal, in order that the structure may sustain a heavy weight.

Sixth, The arrangement of scrolling and soldering together the surplus edges of the air-tight cover of a sheet-metal coffin, and beading the same, which, on being turned under, serves to fit the groove, i, as well as to stiffen the cover. Also the stiffening bars, h, substantially as described.

Seventh, The arrangement of pressing a recess in the sheet-metal all round the windows of a sheet-metal coffin for receiving and supporting the glass. I also claim the arrangement of supporting the glass, by a flange formed by the extension of a second inside sheet of the double cover.

Eighth, The arrangement of fastening the glass in these recesses, by means of metal sashes fastened to the coffin-lid, as described.

Ninth, I claim the flanges formed on the outer edges of the sheet-metal blinds, m m, for the purpose of closing around the metal sash, and securing the glass from the intrusion of dust and from other annoyances.

Tenth, I am aware that I have claimed the bi-section of a hinged cover for the joint of the lid of a sheet-metal coffin, according to the breaks in the side-walls; I claim the cover, j, as applicable to a coffin with straight side-walls, in two hinged sections, as described.

SEEDING MACHINES—Andrew Simmons, of Nora, Ill.: I claim the arrangement of the boxes, T, in relation to the agitator, C, plates, N and O, and in combination therewith the hollow drill-tooth, V, the several parts being so constructed as to form a broad-cast seed planter and drill.

MACHINES FOR BINDING GRAIN IN BUNDLES—James D. Osborn, of Constantine, Mich.: I claim a binding knot composed of three loops passed through each other, when said passing of the loops through each other is effected by machinery driven or moved from any of the moving parts of a harvesting machine, and whether accomplished by the means herein staled, or by their substantial equivalents.

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THE CONSTRUCTION OF SLED RUNNERS—John M. Spooner, of Springfield, Mass.: I claim making both of the runners and the bearers of a sled or sleigh, or other similar vehicle, of one continuous piece or rod of steel or other metal, substantially as set forth.

SEEDING MACHINES—Enos Stimson, of Plainfield, Vt.: I claim the arrangement and combination of the shaft, F, box, E, shaft, M, arm, O, and box, N, as and for the purpose shown and described.

[This invention consists in a combination and arrangement of a broadcast and drill and hill-distributing device whereby two different kinds of seed may be sowed simultaneously—one broadcast, the other in hills and drills, and either allowed to be used separately when desired.]

BREECH-LOADING FIRE-ARES—Wm. Mont. Storm, of New York City: I claim such an arrangement of the links, as described, and their connection with the breech-piece and lever, that they shall jam forward and firmly hold the former against the rear of the bore of the barrel after it has ceased its motion transversely to the latter, and, *vice versa*, release the breech-piece (in opening the breech) before its momement commences.

Second, I claim the perforated breech-piece, in the manner and for the purpose described.

Third, I claim arranging the horn or head of the hammer, in the manner and for the purpose described.

THE RUNNING GEAR OF SLEDS—R. Sutton, of East Avon, N. Y.: I claim the arrangement and combination of the sliding collar, G, rods, o, reach, E, sliding bolster, F, pendants, i, links, j, and runners, B, as shown and described.

[Those sleighs which have two sets of runners are improved by this invention, which consists in a peculiar manner of connecting the front and back runners, and also in a peculiar way of connecting them to their bolsters, whereby the runners are allowed to conform to the inequalities of the surface of the ground over which they pass. The sleigh allows them to turn readily, and prevents them being injured by ordinary fair usage.]

STOP COCK—Isaac C. Tate, of New London, Conn.: I claim the appplication of the spring, A, in the manner substantially as set forth and described, and for the purpose described.

WHIFFLETREE HOOKS—Lewis C. Terry, of Chenango, N. Y.: I claim a hook, pivoted or hinged to its supporting eye, which is cut away or flattened on its back, in the manner described, so that the point of the said hook, being in contact, or nearly so, with its said holding eye, will securely confine a link, a ring, a staple, a trace, or similar object, in all positions, excepting when turned back upon the said flattened or eccentric part of the eye, substantially as set forth in my description.

I also claim the right, in addition to the above, to so construct the hook and eye that the hook shall have but one motion, viz, a horizontal motion directly around the circle formed by the said eye, so that the said hook shall not drop or work from side to side; and the exclusive right to use the same in either or both the forms above mentioned and described, for all purposes for which they may or can be used, when constructed substantially as set forth.

CULTIVATORS—Joseph Thirlwell, of Galesburg, Ill.: I claim the arrangement of the frame, A A, the iron bows, B B, the hinge bow. C, the tongue braces, D D, and lifting chain, F, when constructed and used in combination for the purposes set forth.

SEEDING MACHINES—Franklin Veal, of Hallettsville, Tex.: I claim, first, The arrangement of the windlass, K, the hand lever, H, and the lever, N, in combination with the smoothing roller, L, the hopper, F, and the harrow, M, and in such relation to the driver's seat, I, that they can be operated from the same, substantially as and for the purpose described.

Second, The combination of the fan cylinder, f f', with the hopper, substantially as and for the purpose described.

[The hopper box in this invention is arranged with a harrow and a smoothing roller in such a way that all of them, or each for itself, can be operated from the driver's seat, the hopper box being hinged and provided with a lever, whereby the box can be brought in such a position that the flap board or valve is not opened by the cam or that the same is opened for the purpose of discharging seed, and the harrow is suspended from a rope or chain in such a manner that the same can be lifted clear from the ground by means of a hand lever that can be reached from the driver's seat, and the smoothing roller is attached in such a way that it can be raised from or lowered to the ground by means of a windlass that is operated by a handle from the driver's seat.]

RAILROAD CAR COUPLINGS—David Warren, of Gettysburgh, Pa.: I claim the arrangement of the adjustable plate, a, as constructed with the pin, b, arm, A, rock-shaft, R, and guards, B, when the same are operated and used, substantially in the manner and for the purpose set forth.

ROCK DRILLS—Lyman White, of Davenport, Iowa.: I claim, first, Placing the bearings, e, of the shaft, D, to which the box, M, and drill carriage, N, are attached in bar, C C, which are fitted in annular parts, c, of the supports, B, and arranged substantially as shown, so as to admit of the facile adjustment of the drill, P, to any angle or position required.

Second, The employment or use of the racks, E, on the bars, C C, in connection with the wheels, F G, on the shaft, D, the screws, H, attached to the sliding bearings, e, by the bars, f, the wheels, I, on the upper ends of the screws, H, and the pins, d, on the cranks, J, the whole being arranged substantially as shown, to feed the drill to its work.

[An engraving and description of this invention will be found on the first page.]

CAR COUPLINGS—Gilbert Yates, of West Dresden, N, Y.: I claim the combination of the chains, H H, clasps, J J, with the bent and lifting rods, B B, grooved parts, C C, and chains, H, arranged in relation to each other, substantially in the manner and for the purposes set forth.

GRAIN-HULLING MACHINE—Wm. Zimmerman, of Quincy, Ill.: I claim the conduits arranged to receive the grain scoured or operated upon by the first or each revolving scourer, when operated on a horizontal shaft, and conduct it to the center or central part of the second or next revolving scourer, and so on in succession through the whole series of scourers, until it passes out of the machine.

GRAIN BINS—Daniel D. Badger and W. S. Sampson, (assignor to Daniel D. Badger,) of New York City: We claim the arrangement and combination of the metallic bins, A, in the manner and for the purposes substantially as shown and described.

[The buildings in which grain is usually stored are divided into a number of chambers called bins, the grain being carried by elevators to the top and drawn from the bottom. The partitions which constitute the chambers have hitherto been constructed of wood, which has been liable to harbor insects and was not at all fire-proof. This invention consists in making the bins circular and of iron, which will be perfectly fire-proof. Damp grain can be dried in them and they will not be affected by any atmospheric changes. The spaces between the cylinders can either be used as small bins or as flues for ventilation or heating as desired. A mammoth grain warehouse, constructed on this principle, is being erected in Brooklyn, N. Y.]

MACHINES FOR SHAPING THE BACKS OF BOOKS—John E. Coffin, (assignor to A. G. Gerrish,) of Portland, Me.: I claim, first, The arrangement of the sliding-holding jaws and the reciprocating roller carriage, substantially as described.

Second, Combining the toggle mechanism which operates the clamping jaws and the screw which operates the roller carriage with a cam and pulley, or its equivalent, on the same shaft, in such manner as to make a machine for shaping the backs of books, which is perfectly continuous and automatic in its operation, and to and from which the books only require to be introduced and removed by the attendant at the proper stage in its operation, substantially as described.

[This invention consists in a novel arrangement of a pair of clamping jaws and a roller carriage for the purpose of holding the book and shaping its back. It also consists in certain mechanism for operating the clamping jaws, whereby they may be adjusted for books of various thicknesses and yet always present them properly to the action of the shaping rollers. And it further consists in so combining the mechanism which operates the jaws and that which operates the roller carriage as to make a machine for shaping the backs of books that is perfectly automatic in its operations.]

MACHINE FOR CUTTING INDIA-RUBBER INTO THREADS—Joseph W. Cox, of Malden, Mass., assignor to Horace H. Day, of New York City: I claim, first, In combination with the concave rotary cutter, substantially as described, the employment of a tube placed in the concavity thereof, substantially as described, for the discharge of a jet of water against the cutting edge, as described.

Second, I also claim the carriage, with its divided clamps and follower, substantially as described, in combination with a rotary cutter, substantially as described, or any equivalent cutter, for the purpose set forth.

Third, And finally, I claim, in combination with the carriage clamp and follower, the mechanism, or any equivalent thereof, for operating the follower, substantially as described.

MACHINE FOR BORING BLIND STILES—Danl. Dunham, (assignor to D. D. Sweet, James Bromily and E. W. French,) of Pawtucket, R. I.: I claim, first, The rack, J, or its equivalent, arranged in combination with the sliding carriage, F, and with the dog, o, as described.

Second, The lever, M, arranged with the nose, p', in such relation to the treadle, D, that by its action the dog, o, is operated, as specified.

[A rack, consisting of a series of converging slats, is arranged in such relation to the sliding carriage on which the blind stiles, or other similar articles, are fastened for the purpose of laying out the spaces for holes or mortices, that the length of these spaces can be regulated by moving the rack in or out and that the carriage can be adjusted by a gage to different spaces and the sliding carriage is operated automatically.]

TRIP-HAMMERS—Bennet Hotchkiss, (assignor to himself and F. S. Collins,) of New Haven, Conn.: I claim my improved means of operating the hammer, that is, by an air spring cylinder, substantially as described, or its equivalent, applied to the piston and combined with mechanism, by which a rapid reciprocating rectilinear motion may be imparted to such cylinder, essentially in manner and so as to operate the piston and hammer as specified.

I also claim, in combination with the piston trip-hammer, the air spring cylinder and the mechanism for imparting to the latter reciprocating rectilinear motions, as described, mechanism substantially as specified, for varying the altitude of the path of movement of the cylinder under circumstances as explained, such mechanism as above described, consisting of an eccentric bearing shaft, H, applied in boxes, I I, and to the crank-shaft, G, of the cylinder, B, substantially as specified.

COMPOSITION FOR CEMENTING IRON—Job Johnson, of East Brooklyn, N. Y., assignor to Chas. D. Archibald, of London, England: I claim the combination and use of lime, bone dust and charcoal, in the manner and for the purposes substantially described.

SPINNING TOPS—Francis Milward, (assignor to H. Homan, W. L. Thomas and D. D. Hardy,) of Cincinnati, Ohio: I claim a combined gyroscope and spinning top, constructed and operating substantially in the manner set forth.

SEEDING MACHINES—Daniel Nichols, (assignor to Chas. Rumley and Edward Rumley,) of Onarga, Ill.: I claim the combination and arrangement of hinged bars, E H, slotted arc, I, driving-wheel, J, and auxiliary seed-hopper, F, when the same are arranged and operating in the manner and for the purposes specified.

[A plow and seed-planter are so combined in this invention that the seed-planter can be made adjustable according to the depth to which the seed is to be planted, at the same time adapting itself to the irregularities of the surface of the ground and the motions of the plow in turning over the sod.]

ROLLING METAL FOR JEWELRY—John S. Palmer, (assignor to himself and Chas. S. Capron,) of Providence, R. I.: I claim the employment of a tapering die, A, in combination with the pressing rollers, substantially as and for the purpose specified.

[The object of this invention is to combine the stamping and the rolling in one operation, and the invention consists in placing the stock from which a certain article of jewelry is to be manufactured on a die, the face of which is provided with a groove corresponding in shape to the form to be given to the article of jewelry, and in passing the die together with the stock through rollers so that the stock, by the action of the rollers, is pressed into the groove and raised and stretched out according to the inequalities of the bottom of the groove, so that plates for rings and similar articles which are flat on one side but not of uniform thickness throughout, may be rolled out by passing the requisite stocks on suitable dies through a pair of pressing rollers.]

ATTACHMENT FOR ALARM CLOCKS—E. T. Quimby, assignor to himself and Newton Brooks,) of New Ipswich, N. H.: I claim, first, The wheel, A, or its equivalent, having a series of projections, a, which, or some of which, can be covered up or removed, and operating in combination with the hammer, B, substantially as and for the purpose described.

Second, The arrangement of the slides, F, to operate in combination with the wheel, A, and with the hammer, B, substantially in the manner and for the purpose specified.

[This is a very simple and excellent alarm clock.]

CORN HARVESTERS—Geo. W. Richardson and James W. White, of Grayville, Ill., assignors to themselves and Geo. M. Weed, of White County, Ill.: We claim the combination of the gathering wheels, L L, terete rollers, H H, stripping plates, M, and guide plates, N, as set forth.

And we also claim the combination of the fender or guide plates, N, meeting the points of the rollers, H, with the terete rollers and stripping plates, as set forth.

WATER-WHEEL—Robt. Ross, (assignor to himself and Geo. J. Stannard,) of St. Albans, Vt.: I claim the plate or gate, F, placed within the water passages, a, of the wheel provided with the vertical projections, f, at the issues, e, and attached to the rod, E, within the shaft, G, of the wheel, substantially as and for the purpose set forth.

[This invention relates to an improvement in that class of horizontal water-wheels in which the water passes through curved passages in the wheel, and which are generally known as re-action wheels. The invention consists in having a gate fitted in the water passages of the wheel, arranged so that the dimensions of the passages may be varied by an ordinary regulator or governor and the speed of the wheel be rendered uniform.]

RAILROAD CARS—Henry Webb, (assignor to S. L. Wilder,) of Cincinnati, Ohio.: I claim the angular rail herein above described, when constructed so as to be convertible and present a new surface after the first surface has been worn out, in the manner and for the purposes specified.

MEANS FOR ACTUATING MOVABLE PARTS OF FIRE-ARMS—Thos. Bailey, of New Orleans, La. Patented in England Dec. 3, 1858; I claim combining a toothed wheel or pinion on a traveling center and working between guides, with a pair of racks, one of which is stationary and the other movable, having connected to it the part of the fire-arm to be moved, the toothed wheel changing its position or traveling in the same place with the guides, substantially as set forth.

RE-ISSUES.

COTTON GINS—David G. Olmstead, of Vicksburg, Miss., assignee of R. A. L. McCurdy, of Sabine Parish, La. Patented June 26, 1855; Re-issued July 15, 1856; Again re-issued June 14, 1859: I claim the revolving screen, cylinder or shaft situated in the hopper or roll-box, so that the roll moves around it, when constructed and arranged substantially in the manner described, whether as a single or double device, so as to perform any or all of the functions, as specified.

I also claim discharging the hulls and trash from the roll-box through the sides of the cotton gin, as set forth.

FASTENING CENTER BITS—Able W. Streeler, of Shelburne Falls, Mass. Patented January 23, 1855; Re-issued June 14, 1859: I claim fastening a bit in its stock by means of a projection on one and a suitable recess for it on the other, when combined with mechanical pressure or friction that will hold the projection and recess together, ssbstantially as described.

ADDITIONAL IMPROVEMENT.

THE CONSTRUCTION OF CHAIRS, SOFAS, &c—Charles Robinson, of Cambridgeport, Mass. Patented March 9, 1858: I claim, additional to the original improvement, the spring plate, D, arranged and operating in combination with the supporting blocks, B B, substantially as specified.

DESIGNS.

STOVE PLATES—S. W. Gibbs, of Albany, N. Y., assignor to Abbott & Lawrence, of Philadelphia, Pa.

STOVE PLATES—S. W. Gibbs, of Albany, N. Y., assignor to Abbot & Lawrence, of Philadelphia, Pa.

TOPS AND BASES OF SHEET-IRON STOVES—S. W. Gibbs, (assignor to Rathbone & Co.,) of Albany, N. Y.

ARMS OF SEWING MACHINES—James S. McCurdy, of Brooklyn, N. Y., assignor to John M. Myers, of New York City.

INVENTIONS EXAMINED at the Patent Office, and advice given as to the patentability of inventions, before the expense of an application is incurred. This service is carefully performed by Editors of this Journal, through their Branch Office at Washington, for the small fee of $5. A sketch and description of the invention only are wanted to enable them to make the examination. Address MUNN & COMPANY,

No. 37 Park-row, New York.

A Fragrant Breath.

There are various ways of scenting the breath the simplest is by chewing orris root, or any other fragrant substance. Tooth-powders, lozenges, and tincture dentifrices, however, are preferable in many respects, as they can be easily used, and yet leave the mouth free for "chatting." The following is a good domestic recipe for a highly scented tincture to perfume the breath. Take either white wine, such as sherry, or any alcoholic spirit, a quarter of a pint; broken cloves and grated nutmeg, of each one drachm (one eight of an ounce); cinnamon a quarter of an ounce; carraway seeds, bruised, a quarter of an ounce; place all these dry substances into the wine, or spirit, in a half-pint bottle, and let them stand together for several days, agitating them every night and morning to accelerate tincturation, for at least a week. Then strain off the tincture through linen to get it bright. Then add about ten drops of otto of lavender, and if you can afford it, five to ten drops of otto of rose also. Although the recipe is complete without it, yet this latter substance greatly improves the formula. A few drops of this tincture put on to a lump of sugar and masticated will scent the breath. It may also be used with advantage on the tooth-brush, in lieu of tooth-powder, or, mixed with water, it can be used as a gargle. Either way will secure "a breath of flowers." S. PIESSE.

Treating Scalds and Burns.

Dr. South, a London physician, in a recent work on domestic practice, gives the following for the treatment of scalds and burns—misfortunes to which children are too often subject:

"The object in treating scalds and burns is to keep up, for a time, the great heat or high temperature to which the injured part has been raised by the scalding or burning, and to lower this by degrees to the natural heat of the body. . . . If the blistered skin be unbroken, the burns may be covered with dry or wet applications, whichever may be handiest or most preferred; but if the skin be broken, wet applications, if they can be got at once, are best, otherwise dry ones must be used; as it is off the utmost importance to protect the exposed sensitive true skin that lies beneath the scarf-skin, of which the blister consists, from the air, which renders it excessively painful. The best and readiest dry materials are flour, or cotton, or cotton-wadding; the wet are spirits of turpentine, spirits of wine or good brandy, lime-water and oil, lime-water and milk, milk alone: or bread and milk poultice; and all these wet applications must be made of sufficient warmth to feel comfortable to the finger, but not too hot."

An American Engineer in the Austrian Service.

It is well known that Austria has of late years been strengthening her fortifications in her Italian possessions. One of the most important has been constructed under the superintendence of an American, H. E. Towle, who graduated at the Lawrence Scientific School, connected with Harvard University. Some three years ago he went to Austria, for the purpose of erecting extensive fortifications at Pola on the Adriatic, about ninety miles south of Trieste. The works were nearly completed at the last accounts, and he hoped soon to be able to return to his country, though he expressed some fears that the French would blockade Pola, and thus his return be prevented.—*New York Express.*

Some Things to be Read.

It is hoped that, out of respect to the publishers, every reader of the SCIENTIFIC AMERICAN will, before he lays down this number, carefully read the following brief notices:

BACK NUMBERS are always supplied to our subscribers free of charge, when we have them; but as we are out of many numbers, when parties order and do not receive the missing numbers called for, they may conclude that we cannot supply them. It cannot, of course, be expected that we will write to all those who order, informing them of our inability to furnish the numbers desired.

BOUND VOLUMES (XIV.), complete, will be ready in a few days; price, $2 75.

BINDING.—Subscribers wishing to have their loose numbers bound can send them to our office for that purpose; charge for binding, 75 cents.

AN ILLUSTRATED TITLE-PAGE, printed on a separate sheet, has been provided to accompany this number. We have issued enough to supply *all*, and we hope that those of our readers who receive their paper from the news agents will be particular to ask for the title-page. It is useful for all those who may wish to bind their volumes.

TO INVENTORS & PATENTEES.—A pamphlet of advice, "How to secure Letters Patent for New Inventions," prepared by MUNN & Co., is furnished without charge. It is useful to all who contemplate making applications for Letters Patent.

THE CONTENTS OF OUR NEXT NUMBER—the first of the new series—we are confident will not disappoint the expectations of our readers. It will contain several interesting illustrations, and a choice variety of reading matter.

DESTROYING VINE INSECTS.—At this period of the year, grape vines in cities and large villages are infested with worms, which feed voraciously on the leaves and do considerable injury. The most convenient way to destroy them is by the use of tobacco juice and sulphur. A pound of tobacco steeped for an hour in ten gallons of water, in which two ounces of sulphur have been stirred, makes a solution of sufficient strength, to be sprinkled with a watering-pot over the entire vine. Two or three sprinklings may be required before the pests are all destroyed.

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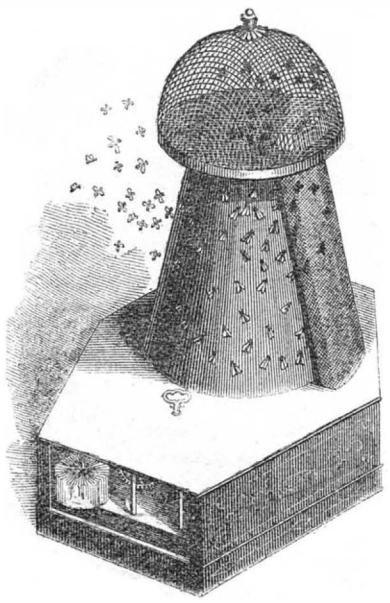
New Inventions.

Clough & Burrell's Fly Trap.

We always thought that a lighthouse was intended either to warn the mariner of danger or show some friendly channel; but these inventors call their trap a lighthouse trap, and instead of warning flies of their danger, it, with spider-like guile, allures them to their death.



Our illustration shows one of these traps. The clockwork is in the base, from which rises the central column, which is covered with sand and on which the bait (molasses and sugar) is to be spread with a sponge. A rotating spindle passes through the center of this and carries a platform on the top, from one side of which the catcher projects downwards, close to, but not in contact with the sanded cone. On the top of this platform a cage, containing water in its base, is placed, into which the flies are attracted by the light, when started from their enjoyment of the sweets of life by the catcher. When the spring is wound up and the trap baited, the catcher and cage commence revolving around the sanded cone, and the flies are caught, made prisoners, and finally find a watery grave.

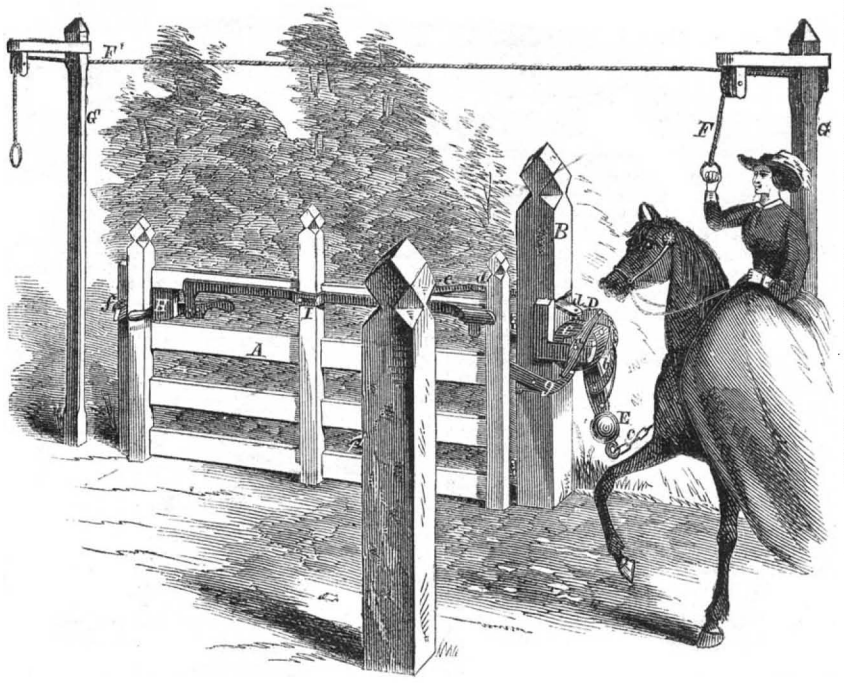
The inventors are I. S. Clough and Saml. R. Burrell, of New York, and the patent was issued this week. Any information or traps may be obtained from I. S. Clough, No. 231 Pearl street, New York.

New Farm Gate.

The extreme simplicity of this gate will recommend it to all who wish to have the carriage way to their house, or the entrance to a field or drive, closed with a gate that can be opened by a person on horseback or in a conveyance without dismounting.

The gate, A, is swung as usual from a post, B, to which there is attached a framing that carries a grooved drum, C, and a double lever, *a*. On the end of the drum is a ratchet-wheel, D, in the teeth of which a pawl, *b*, is kept by a spring, the ratchet being connected to a weighted lever, E, the tendency of which is to pull the pawl over the teeth without moving, C; but when the weighted lever is elevated by either cord, F or F', that depend from the posts, G G', and are connected by a chain, *c*, to E, then the ratchet or grooved drum are rotated a quarter of a revolution, or the distance of one groove. In the grooves of C a pin works which is rigidly connected to a lever, *d*, that has its fulcrum inside B, and that is connected by another lever, *e*, and a sliding joint to the gate, the fulcrum of *e* being on the end of a link that is hinged to B. The latch, H, is kept in the catches, *f* and *f'*, according as open or shut, by a small spring, and the inside end of the latch is connected to the double lever, I, that is operated by one arm of *a* striking it and so elevating the latch when in one position, and by the other end of *a* striking and depressing the double bent lever, *g*, that operates a pin on the other side of I, when the gate is in the position shown. As the grooves in C run in opposite directions, it follows that, on pulling the cord on one side the gate to open it, when the other cord is pulled it must close the gate, and *vice versa*. This gate is very durable; there is no sunk mechanism to get out of order or become clogged with dirt or frozen up, and by removing the pin which connects the lever, *e*, to the gate, a common farm gate is made.

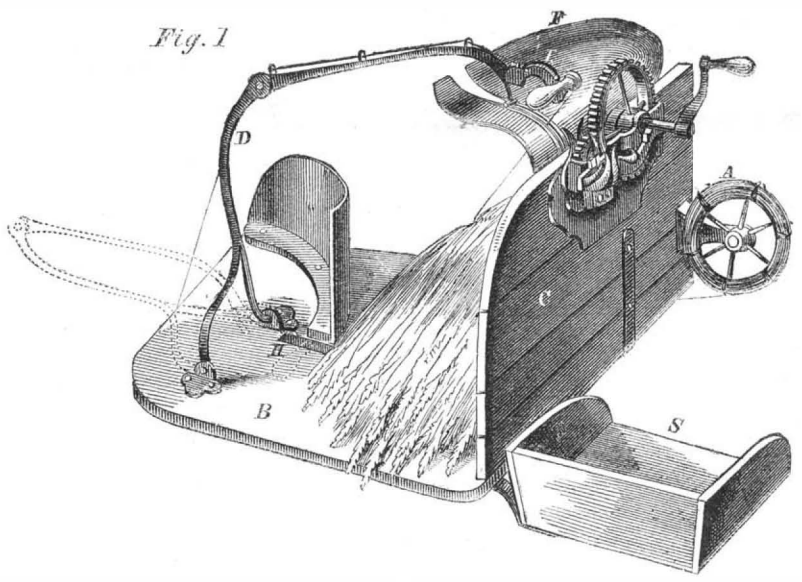
BOGGS' FARM GATE.



There is nothing strange in its appearance to frighten cattle or horses. It is very easily constructed, and is cheap.

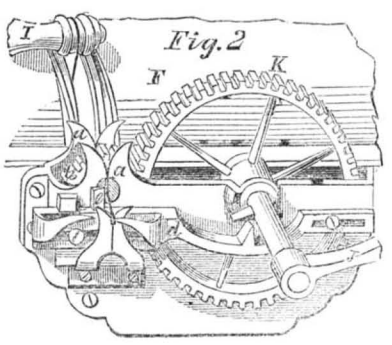
The inventor is W. T. Boggs, of Cincinnati, Ohio, and the patent is dated Oct. 19, 1858. He will be happy to furnish any further information concerning the invention upon being addressed as above.

SHERWOOD'S GRAIN BINDER.



This binder, the invention of Allen Sherwood, of Auburn, N. Y., can be attached to the platform of any reaper, and it requires only the attendance of one man.

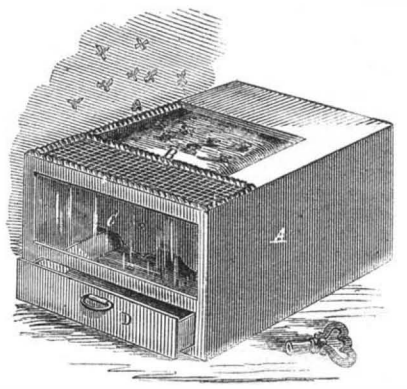
A reel of wire, A, is attached to the side of the harvester, and along the bottom of the supplemental or binding platform, B, a groove, H, is made, through which the wire is passed to the jointed arm, D, along eyelets in which the wire returns. We may as well describe the operation, by which the machine will be fully appreciated. The operator sits on the seat, S, Fig. 1, and taking the handle, I, of the jointed arm, D, in his left hand, he passes it over the shield, F, on the top of the side, B, and down to the position indicated by dotted lines on the platform. The grain is then raked on the platform, B, and the binder, by elevating the handle, I, passes the wire completely around the sheaf and brings the end to the device seen in Fig. 2, which is placed on the outside of the slide, C, of the device. The wire passes between the two jaws, *a*, and between two eccentric cog-wheels, *b*, which are rotated by a wheel, K, operated by means of a handle, J, which the operator keeps in his right hand. These wheels, *b*, twist the two ends of the wire to secure it round the sheaf, and a stop, *c*, on the shaft of K, catching against another one a sliding frame, *d*, that carries a knife, *e*, causes the wire to be cut off, and the sheaf



drops away bound and fastened, and the operator is prepared to perform the same operation again, which takes less time than we have taken to describe it. The whole complete weighs only about forty pounds, and it is constructed so as to be sold very cheap. The wire must be flexible iron wire and will not cost much, and can be used for other purposes when the grain is threshed. The sheaves can be easily unwired by a peculiar pull with a gloved hand, although they are not likely to come unfastened by any of the exigencies of transportation from the field to the thresher. Any one can operate it after a little practice, and there is no doubt that it does its work quickly and well.

It is a subject of two patents, Jan. 26 and Sept. 14, 1858, and has been assigned by the inventor to E. P. Senter & Co., of Auburn, N. Y., who will be happy to furnish any further information.

Automatic Fly and Mosquito Trap.



We must confess that it is very cruel to take life and cut short the ephemeral existence of even flies and mosquitoes, but the fact is, they are much too friendly, and have such an uncomfortable way of showing their attachment to our persons, that we willingly seize hold of any means to exterminate these diminutive blood-suckers. Our illustration shows a trap which not only catches but confounds and kills the insects who may happen to be attracted by its seeming innocence.

It consists of a box, A, in one end of which there is a common clock movement, which gives motion to the endless band, B. This band is moistened with a few drops of rum, or molasses and vinegar, and set in motion, when the flies attracted on to it are carried down into the body of the box, where a corrugated or winged drum knocks them off into the bright tin drawer, D, that is half full of water, and the flies, being first stunned by the blow of the roller or drum and further confused by the intense light of the polished tin and the humming noise of the clockwork, quickly lose the power of resistance and drown in the water. When mosquitoes are desired to be caught in the night time to keep the room clear enough to give us rest, a light must be placed opposite the glass front, C, in in order that the light may be reflected by the polished tin and so attract the mosquitoes.

It is the invention of S. W. Smith and H. Bigelow, and any further particulars may be obtained from the former by addressing him at 534 Broadway, New York. The patent is dated Feb. 15, 1859.

Inquest on Patents.

A discussion took place a few days ago, in the New York Academy of medicine, on the question whether the Academy should pass an opinion on surgical instruments and apparatus which have been patented. Dr. McNulty contended that it was contrary to the spirit of the Code of Ethics of the National Association for physicians to obtain patents, and consequently that they should not act upon other people's patents. This sentiment met with much opposition, and the general opinion was that surgical appliances should come under a different rule from nostrums; the former being usually invented, at least in part, by mechanics, who could not do without the patent. A resolution by Dr. McNulty, to the effect that the consideration of no patented article should be entertained by the Academy, was lost.

We have received from the author, F. W. Evans, a very interesting account of the theology, sociology, and history of the Shakers, together with a life of Ann Lee.

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Scientific American.

NEW YORK, JUNE 25, 1859.

Special Notice.

All subscribers to the SCIENTIFIC AMERICAN who have paid the full subscription price (two dollars) for the complete volume which has heretofore terminated in September, are informed that by remitting $1 60 more, their subscriptions will be continued for one year on the New Series commencing July 1st.

CLUBS of subscribers who have paid up to September, and wish to renew their subscriptions or form new clubs at that time, can do so at the club rates, deducting 30 cents each from all the present subscribers and complying to our advertised rates on new ones; for instance a club of 10 subscribers who have paid $15 for one year's subscription up to September, may have their subscriptions continued till the end of Vol. II., New Series, or one year from July 1, 1859, by remitting $12.

The Past, the Present and the Future.

In accordance with the announcement (made in No. 35) of our intention to enlarge the SCIENTIFIC AMERICAN, and commence a new series on the 1st of July next, the present number terminates Vol. XIV.; and with the next issue we shall appear before our readers in a new form, with new type, and thus introduce "Volume I., Number 1, Enlarged Series"—a sixteen-page paper instead of an eight.

The SCIENTIFIC AMERICAN will next week enter upon its *fifteenth year;* and we hope we shall be able to show to our friends and the public that it still has a vigorous existence, and that it enters upon a new career with the intention of proving itself still more worthy of the confidence and support of a generous and enlightened reading public.

We know from a long experience that our journal has a host of friends everywhere; and the hearty response which has been made towards it, in reference to the proposed scheme of enlargement, assures us that we have not taken this step in vain. We desire here to repeat—what we have often had occasion to do—our warmest thanks for the generous support and confidence which has been given to us during the thirteen and a half years in which we have had control of this journal. Without multiplying words on this point we will proceed at once to give a few details concerning the enlargement and alteration in the form of the SCIENTIFIC AMERICAN. The necessity for the change has long been apparent, not only to ourselves but also to our readers, and the difficulty against which we had to contend was principally one of prime cost; and, as our custom is, we sat down to count the expense and to consider how we could best accomplish our objects. To double the present size of the journal without resorting to the expedient of using a very inferior quality of paper is out of the question, as no sane man would undertake to publish a journal twice the size of this and use equally as good paper for $2 a year, with our present liberal clubbing rates. We thought of a number of plans whereby we could serve up a more acceptable weekly entertainment to our readers, such as a double sheet monthly or bi-monthly, or a loose supplemental sheet weekly; but a little experience in both these particulars convinced us that neither plan would be satisfactory. We therefore resolved, as the last resource, to change the form of the journal by using a larger sized sheet but folding it into a sixteen-page paper instead of an eight; and thus slightly reducing the size of the pages. The size of the sheet upon which each number of the new volume is to be printed is 28 inches by 40, or just one-half larger than the sheet now in the hands of the reader; and by a better and more economical arrangement of the space we shall be able to present to our readers almost a double quantity of useful reading matter, and at the same time afford them a more compact, and, we believe, a more convenient volume for binding and preservation. In reference to the amount of reading matter we would further explain, to render this point clear, that, in the present issue, the letter-press covers a total available space of 872 inches, while in the new form the total available space will be 1,536.

It must be apparent to all that this improvement will open to us a wider field for the expression of thought and the results of investigation than we have hitherto enjoyed; and while we do not intend to depart from our legitimate sphere, wherein we have so long labored and wherein there is yet much to be accomplished, we hope at the same time to develop more fully the varied operations connected with invention and the industrial arts and sciences.

By the pen and the aid of the graphic pencil we shall delineate, week by week, the actual progress of invention, discovery and manufactures; and, as heretofore, the SCIENTIFIC AMERICAN will be the only reliable organ of all those ingenious men who, by their continual discoveries in various fields, are ever advancing the world in the knowledge and application of the arts and sciences; and thus the beneficial influence of this journal will be made to extend to all classes of society.

We shall publish the proceedings of scientific associations and bodies so far as their deliberations bear upon the interests of the Inventor, the Mechanic and the Manufacturer; also reports of patent trials, and biographical notices of scientific men and inventors—a feature which we shall endeavor to render useful and attractive. As examples of this kind we refer to our recent notices of Humboldt, Lardner, Olmsted, Watt, Robertson, and Commissioner Bishop.

As heretofore, we shall pay particular attention to the department devoted to giving valuable information to our correspondents, which we shall endeavor to make still more varied and interesting. We shall also vigilantly watch the operations going on in our markets in metal, lumber, and such other departments as may be deemed useful to our readers.

With the foregoing hints and glimpses of our future course, we close our labors on the present volume; and cheered by strong assurances of cordial support from thousands of our subscribers, we shall work on vigorously, trusting that all who already read the SCIENTIFIC AMERICAN will confidently believe that our past exertions form a partial exponent and satisfactory guarantee of our future efforts.

Fawkes' Steam Plow.

A powerful steam plow of thirty horse power having been constructed in Philadelphia for Mr. J. W. Fawkes, of Lancaster, Pa., the inventor issued circulars of invitation for a grand exhibition of its powers, to take place at Oxford Park—about 10 miles from Philadelphia—on the days of the 15th, 16th, and 17th inst. Having taken a deep interest in the subject of steam-plowing, we accepted the invitation of Mr. Fawkes to be present, and expected to be highly gratified with the display. We regret to state that, from the defect of two pinions gearing into the wheel on the main drum, our anticipations were doomed to disappointment. On Wednesday (the 15th), after the plow had traveled round the race course, it was set to work, but had not proceeded above 30 yards when the cogs of the pinions referred to were ripped off, and further operations entirely defeated. We regretted the result as a great number of persons, like ourselves, who had come from a distance to witness the operation, felt mortified, both on their own account and that of Mr. Fawkes. He deserved better success, as his plow contains some good features and had made a very successful private experiment on the day previous. The plow is 18 feet long by 7 wide, has two horizontal cylinders of 9-inch bore and 15-inch stroke. The boiler is a "vertical tubular," and carries 150 lbs. of steam. The principle feature about it is that the whole frame and machinery are supported on a large rolling drum six feet wide and six feet broad. The power of the engine drives this drum, and it drags a gang of eight plows behind it in an adjustable angular frame. The motion from the crank-shaft to the drum shaft is imparted through cog-gearing, and it was defective teeth in one of these cogs which caused the break-down. It will soon be in operation again, and, with better pinions, it will no doubt give satisfaction, and may yet be the successful competitor for the prize of $6,500, offered by the Illinois State Agricultural Society.

Humboldt's Will.

The late Baron de Humboldt has bequeathed to his domestic, Seiffert, who lived with him thirty-three years, all his immense library, all his furniture, and all his articles of value, with the exception of a few which he charges him to present to certain persons. His manuscripts, however, are not comprised in the donation, and among them is a geographical work of greater extent than any hitherto published. The domestic is his testamentary executor. The money in hand at the time of the baron's decease was under five hundred thalers. Of this sum he had given four hundred thalers to the servants, with written instructions to apply the money to the expenses of his funeral. As a proof of the little value M. de Humboldt set on personal distinctions, it may be stated that the great number of decorations which he had received from the sovereigns of all countries were found lying pellmell in a cupboard. His legal heirs, the sons and grandsons of his brother William, had caused the property to be put under seal, not being aware of the donation to Seiffert. This old and faithful servant had some years before been appointed guardian of a royal palace at his master's request, but the king dispensed with his fulfilling the duties of his post during the lifetime of Humboldt.

To Stop Bleeding of the Nose.

Bleeding from the nose is very frequent in young people. Generally this is checked by the person sitting upright, bathing the nose externally with cold water, or vinegar and water, and sniffing it up the nostril. If, however, it continue, a moderate pinch of powdered alum may be put into a couple of tablespoonfuls of water, and thrown up with a squirt; or a plug of cotton dipped in this wash may be passed into the bleeding nostril, for generally it is only one side which does bleed; but care should be taken to fasten a strong thread securely round it, lest it be pushed in or slip so far back into the nostril that it cannot be got out without much difficulty. When there is frequent disposition to bleeding from the nostrils, it is necessary to prevent costiveness, and to take some saline purge continually, so as to keep the bowels rather relaxed. Persons who are subject to severe headaches, followed by bleeding of the nose, should never try to arrest the latter suddenly, but allow it to bleed freely for some time, in order to prevent congestion of the brain.

THE ATLANTIC FERRY.—Twenty-two steamships arrived at this port, Boston, and Quebec, during the month of May, from Europe. Twenty-one steamers in thirty-one days! Almost as many went the other way. It is only twenty-one years since the little Cork steamer, *Sirius*, the first to cross the Atlantic, made her appearance off the Battery. She was eighteen days in making the passage. Now it is accomplished in nine days. The arrival of the *Sirius* produced a sensation throughout the country. Now the arrival of twenty-two steamers in one month scarcely excites a remark. *Tempora mutantur.*

Cast-Iron Stairs.

When a fire takes place in a dwelling, in general the staircase, being of wood, goes early; means of escape are cut off; the inmates can neither get down to the street, nor up to the trap-door, so as to get on the roof of the next house. It has been suggested, as a remedy, to have the stairs made of cast iron; the one end of the steps to be inserted into the wall when the house is being built; the other end of the steps to be made fast in an upright square or round iron pillar, going from the ground to the top of the house. The stairs could be carpeted, and the steps made highly ornamental, with eyes cast for the stair-rods. Of course we only refer to private dwellings, as iron stairs of a very durable and ornamental character have been erected in several of the cast-iron stores in this city.

RIFLE CARTRIDGES.—The conical bullets for rifles sometimes oxydize and become too large for the bore of the barrel, and from this cause some of the British troops have experienced greate trouble in India. To prevent this evil Capt. J. Norton reccommended the following method of making cartridges:—"If the shot is coated with thin tough paper pasted on its cylindrical body, and a little forward on its conical front, the lead cannot then oxydize, and the shot preserves its proper size in all climates. The oxyd of lead is a poison, and causes wounds to mortify. This fact ought to be made known generally, and without any delay."

FRIGHTENING RATS.—An old work on catching rats contains the following simple method of banishing these pests from houses. The author says: "I shall here give the reader another maxim I have often followed very successfully. Take a pint of common tar, half an ounce of vitirol, and a good handful of common salt: mix them all well together in any old deep pan. Soak some pieces of paper, and place enough of this into the holes, sufficient to stop them, and then let the bricklayer make good after you; and if you should find any of the holes opened again, it is quite certain you did not put in a sufficient quantity; then put in some more; and if it is done as it ought, they will never approach there again while either taste or smell remains in it."

A REMARKABLE INSECT.—A paper has been sent to the Paris Academy of Sciences by M. Dafour, which describes the anatomy of a small insect not more than four millimeters (about the sixth of an inch) long, which possesses an organism as complete as a large vertebrated animal. It has a nervous system, brain and ganglia and a respiratory system. All the members of this insect are very minute and fragile, and have excited the wonder of the Parisian *savans.* We do not doubt it; Paris *savans* are an enthusiastic class of men.

SUBSTITUTE FOR TOBACCO.—"Any person," says the *Colonial* (West India) *Standard,* "who knows anything of the fragrance of the Pimento when in full blow, may form some idea of it by a pipe charged and lighted with the dried berry simply crushed in coarse bits. It cannot be well smoked in short pipes, but with the long cherry stick of a meerschaum it affords a treat beyond anything known in the use of tobacco. The coolies and native laborers are bringing Pimento into use in the place of tobacco."

A USEFUL HINT.—If a man faints away, instead of yelling out like a savage, or running to him to lift him up, lay him at full length on his back on the floor, loosen the clothing, push the crowd away so as to allow the air to reach him, and let him alone. Dashing water over a person in a simple fainting fit is barbarity. The philosophy of a fainting fit is, the heart fails to send the proper supply of blood to the brain; if the person is erect, that blood has to be thrown up hill; but if lying down, it has to be projected horizontally, which requires less power, as is apparent.

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Correspondents

G. R., of Iowa.—Your wheel of 4½ feet diameter and 8 feet tread will run at the rate of 80 revolutions per minute. Its power, with 120 inches sluice area, will be about one-horse, without deducting the usual per cent. for friction, &c. There is certainly a very small quantity of water in your stream.

J. B, of N. Y.—A column of water pressing on a wheel will not give it any motion, although it may be 50 feet high, unless it escapes continually. It is the quantity of pressure multiplied into the velocity of the water which constitutes its power; water without motion exerts no mechanical power. You are pursuing an *ignis fatuus*.

J. J., of Me.—You cannot obtain a patent for a water-wheel operating in a vacuum chamber at the top of a fall, the water being forced through the bucket by atmospheric pressure. This principle was patented more than twenty years ago by Z. Parker. Transparent protractors, of horn, can be obtained in this city, but not the material for making them, so far as we know.

W, W., of Georgia.—If spent oils and tallow are treated with weak sulphuric acid to remove the dirt, they may be washed with water, and afterwards used for making soap.

Money received at the Scientific American Office on account of Patent Office business, for the week ending Saturday, June 18, 1859 :—

S. & F., of N. Y., $100; A. H., of Ill., $30; B. R., of Me., $57; B. M. D., of Ill., $25; N. B. of N. Y., $30; E. B., of Mass., $30; M. B., of N. Y., $25; J. B. Q., of N. J., $25; G. & F., of N. Y., $30; E. D. of Ark., $20. G. E. H., of N. Y., $20; P. S., of N. Y., $25; I. & S., of R. I., $30; H. J. H., of Mass., $30; M. L. T., of Wis., $30; T. S., of Cal., $50; R. L. B., of Mich., $25; D. E., of Ill., $30; J. L. W., of O., $55; D. Q., of N. H., $25; H. C., of Ga., $30; D. C. B., of N. Y., $30; E. N., of Mass., $30; W. H. H., of Cal., $30; W. J. K., of Ga., $15; E. C., of Mass., $30; A. E., of C l., $55; P. & C., of Ind., $25; E. & B., of Ill. 30; A. H. C., of R. I., $30; G. W. B., of Miss., $30; J. & S. N. D., of Mich., $30; J. B. S., of N. Y., $60; W. P., of Mass., $25; L. B., of Ala., $25; H. B., of N. Y, $10; H. K. S., of Mass. $25; W. D. N., of N. Y., $32; M. B., of N. H., $40; C & M., of Ill., $30; C. F., of Conn., $30; W. H. S., of N. Y. $50; P. McK., of S. C., $250; C. W. S., of N. Y., $30; M K., of Iowa, $54.

Specifications drawings and models belonging to parties with the following initials have been forwarded to the Patent Office during the week ending Saturday, June 18, 1859 :—

L. B., of Ala.; A. Le B., of Paris; H. H., of N. Y.; J. K., of Mass.; J. F. S., of N. Y.; J. F. W., of N. Y.; J. B. Q., of N. J.; W. D. N., of N. Y.; H. & H., of Mich.; H. K. S., of Mass.; J. P., of N. Y.; H. H., of Mass., 2 cases; P. & C., of Ind.; M. B., of N. Y.; M. B., of N. H.; D. Q., of N. H.; W. H. H., of Cal.; S. G. R., of Mass.; B. M. D., of Ill.; R. L. B, of Mich.; B. R., of Me.; F. & S., of N. Y.; W. P., of Mass.; P. S., of N. Y.

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